



Amendments to the Claims of S.N. 10/823,509):

This listing of claims will replace all prior versions, and listings of claims in the application:

- 1 1. (Original) A method for detecting molecules, the method comprising:
  - 2 a) determining the electronic status of a semi-conductor;
  - 3 b) establishing electronic communication between the molecules and
  - 4 the semiconductor;
  - 5 c) subjecting the semi-conductor to energy influx;
  - 6 d) redetermining the electronic status of the semi-conductor.

Claims 2-27 (Canceled)

- 1 28. (Original) A method for manipulating biological material in vivo, the
- 2 method comprising:
  - 3 a) attaching a semi-conductor to a first biological moiety to create a construct;
  - 4 b) inserting the construct into a living organism;
  - 5 c) allowing the construct to migrate to the biological material;
  - 6 d) creating a plurality of charges on the construct, wherein the size of the charges and
  - 7 distances between the charges cause the biological material to change in structure.

- 1 29. (Original) The method as recited in claim 28 wherein the biological mate
- 2 rial comprises molecules selected from the group consisting of nucleotides, nitrogenous
- 3 heterocyclic bases, amino acids, and combinations thereof.

- 1 30. (Original) The method as recited in claim 28 wherein the charges are
- 2 created by subjecting the construct to radiation.

- 1 31. (Original) The method as recited in claim 30 wherein the radiation has an
- 2 energy greater than 1.6 eV.

- 1 32. (Original) The method as recited in claim 28 wherein the radiation has
- 2 energy ranging from about 1.6 eV to 10 eV.

- 1 33. (Currently Amended) The method as recited in claim 28 wherein the step of
- 2 creating a plurality of charges further comprises subjecting the construct to radiation selected
- 3 from the group consisting of white light, beta rays, ultra violet light, X-rays or gamma rays,

4 alpha rays, gamma rays, and combinations thereof.

1 34. (Original) The method as recited in claim 28 wherein the biological mate  
2 rial is nucleic acid and the construct changes the nucleic acid by cleaving it.

1 35. (Original) The method as recited in claim 34 wherein the cleavage occurs  
2 when the semiconductor accumulates electrons from the first biological moiety.

1 36. (Original) The method as recited in claim 28 wherein the semiconductor is  
2 a metal oxide selected from the group consisting of  $\text{TiO}_2$ ,  $\text{ZrO}_2$ ,  $\text{VO}_2$ ,  $\text{MnO}_2$ ,  $\text{NiO}$ ,  $\text{ZnO}$ ,  $\text{CuO}$ ,  
3  $\text{FeO}_4$  and combinations thereof.

1 37. (Original) The method as recited in 1 wherein the biological molecule is  
2 nucleic acid having base sequences interspersed with guanine.

1 38. (Original) The method as recited in claim 30 wherein the source of radia-  
2 tion is a radioactive isotope selected from the group consisting of phosphorus-32, iodine- 123,  
3 iodine-131, sulfur-35, selenium-75, technetium-99, yttrium-90 and combinations thereof.

1 39. (Original) The method as recited in claim 37 wherein the radioactive  
2 isotope is covalently attached to the semi-conductor.

1 40. (New) The method as recited in claim 40 wherein the source of the radiation is  
2 phosphorus-32.